

114TH CONGRESS  
1ST SESSION

# S. 1185

To better integrate STEM education into elementary and secondary instruction and curricula, to encourage high-quality STEM professional development, and to expand current mathematics and science education research to include engineering education.

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## IN THE SENATE OF THE UNITED STATES

MAY 4, 2015

Mrs. GILLIBRAND (for herself and Mr. HEINRICH) introduced the following bill; which was read twice and referred to the Committee on Health, Education, Labor, and Pensions

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# A BILL

To better integrate STEM education into elementary and secondary instruction and curricula, to encourage high-quality STEM professional development, and to expand current mathematics and science education research to include engineering education.

1       *Be it enacted by the Senate and House of Representa-*  
2       *tives of the United States of America in Congress assembled,*

3       **SECTION 1. SHORT TITLE.**

4       This Act may be cited as the “Educating Tomorrow’s  
5       Engineers Act of 2015”.

1     **TITLE I—AMENDMENTS TO THE**  
2     **ELEMENTARY AND SEC-**  
3     **ONDARY EDUCATION ACT OF**  
4     **1965**

5     **PART A—ENGINEERING STANDARDS AND**  
6                 **ASSESSMENTS**

7     **SEC. 111. ACADEMIC STANDARDS.**

8         Section 1111(b)(1) of the Elementary and Secondary  
9     Education Act of 1965 (20 U.S.C. 6311(b)(1)) is amended  
10    by adding at the end the following:

11                 “(G) INTEGRATION OF ENGINEERING  
12                 SKILLS AND PRACTICES INTO SCIENCE STAND-  
13                 ARDS.—Each State plan may incorporate engi-  
14                 neering design skills and practices into the  
15                 science standards required under subparagraph  
16                 (C).”.

17     **PART B—PROFESSIONAL DEVELOPMENT AND**  
18                 **INSTRUCTIONAL MATERIALS**

19     **SEC. 121. TEACHER AND PRINCIPAL TRAINING AND RE-**  
20                 **CRUITING FUND.**

21         (a) STATE USE OF FUNDS.—Section 2113(c) of the  
22     Elementary and Secondary Education Act of 1965 (20  
23     U.S.C. 6613(c)) is amended by adding at the end the fol-  
24     lowing:

1           “(19) Developing and providing professional de-  
2       velopment and instructional materials for STEM  
3       subject areas, including computer science and engi-  
4       neering.”.

5           (b) LOCAL USE OF FUNDS.—Section 2123(a) of the  
6       Elementary and Secondary Education Act of 1965 (20  
7       U.S.C. 6623(a)) is amended—

8           (1) by redesignating paragraph (10) as para-  
9       graph (9); and

10          (2) by adding at the end the following:

11           “(10) Developing and providing professional de-  
12       velopment and instructional materials for STEM  
13       subject areas, including computer science and engi-  
14       neering.”.

15 **SEC. 122. STEM PARTNERSHIPS.**

16          Part B of title II of the Elementary and Secondary  
17       Education Act of 1965 (20 U.S.C. 6661 et seq.) is amend-  
18       ed—

19           (1) in the part heading, by striking “**MATHE-**  
20       **MATICS AND SCIENCE PARTNERSHIPS**” and in-  
21       serting “**STEM PARTNERSHIPS**”;

22           (2) in section 2201—

23           (A) by striking “mathematics and science”  
24       each place the term appears and inserting  
25       “STEM”; and

- 1                             (B) in subsection (a)(4), by striking “engineering,  
2                             mathematics, and science” and inserting  
3                             “STEM”; and  
4                             (3) in section 2202—  
5                                 (A) in the section heading, by striking  
6                             “**MATHEMATICS AND SCIENCE**” and inserting  
7                             “**STEM**”;  
8                             (B) in subsection (b)(2)—  
9                                 (i) in subparagraph (A), by striking  
10                             “mathematics and science” and inserting  
11                             “STEM”;  
12                                 (ii) in subparagraph (B), by striking  
13                             “student academic achievement in mathematics  
14                             and science” and inserting “student  
15                             academic achievement in STEM”; and  
16                                 (iii) in subparagraph (C), by striking  
17                             “mathematics and science” and inserting  
18                             “STEM”;  
19                             (C) in subsection (c)—  
20                                 (i) in each of paragraphs (1) and (2),  
21                             by striking “mathematics and science” and  
22                             inserting “STEM”;  
23                                 (ii) in paragraph (3), in the matter  
24                             preceding subparagraph (A), by striking

1           “mathematics and science” each place the  
2           term appears and inserting “STEM”;  
3           (iii) in paragraph (4)—  
4               (I) in the matter preceding sub-  
5               paragraph (A), by striking “mathe-  
6               matics, engineering, and science ma-  
7               jors” and inserting “individuals with a  
8               baccalaureate degree in a STEM  
9               field”;  
10              (II) in each of subparagraphs (A)  
11              and (C), by striking “mathematics,  
12              engineering, or science” each place  
13              the term appears and inserting “a  
14              STEM field”;  
15              (III) in subparagraph (B), by  
16              striking “mathematics and science”  
17              and inserting “STEM”; and  
18              (IV) in subparagraph (D), by  
19              striking “mathematics, engineering, or  
20              science backgrounds” and inserting  
21              “backgrounds in STEM fields”;  
22           (iv) in paragraph (5), by striking  
23           “mathematics and science” each place the  
24           term appears and inserting “STEM”;

- 1 (v) in paragraph (6), by striking  
2 “mathematics and science” and inserting  
3 “STEM”;
- 4 (vi) in paragraph (7), by striking  
5 “mathematics or science” each place the  
6 term appears and inserting “STEM”;
- 7 (vii) in paragraph (8)—  
8 (I) by striking “mathematics and  
9 science” and inserting “STEM”;
- 10 (II) by striking “and engineers”  
11 and inserting “engineers, and other  
12 professionals in STEM fields”; and
- 13 (III) by striking “science and  
14 mathematics” and inserting “STEM”;
- 15 (viii) in paragraph (9), by striking  
16 “mathematics and science” and inserting  
17 “STEM”; and
- 18 (ix) in paragraph (10)—  
19 (I) by striking “mathematics and  
20 science teachers” and inserting  
21 “STEM teachers”; and
- 22 (II) by striking “mathematics  
23 and science careers (including engi-  
24 neering and technology)” and insert-  
25 ing “careers in STEM fields”;

- 1                         (D) in subsection (d)(2), by striking  
2                         “mathematics and science teaching” and insert-  
3                         ing “STEM teaching”; and
- 4                         (E) in subsection (e)(2)—
  - 5                             (i) in subparagraph (A), by striking  
6                             “mathematics and science” and inserting  
7                             “STEM”;
  - 8                             (ii) in subparagraph (B), by inserting  
9                             “and a strategy for integrating engineering  
10                          into the science assessments in accordance  
11                          with section 1111(b)(3)” before the semi-  
12                          colon at the end; and
  - 13                             (iii) in subparagraph (C)—
    - 14                                 (I) in clause (i), by striking  
15                                 “mathematics and science” and in-  
16                                 serting “STEM”;
    - 17                                 (II) in clause (ii), by striking “in  
18                                 mathematics, engineering, or the  
19                                 sciences” and inserting “in a STEM  
20                                 field”; and
    - 21                                 (III) in clause (iii)—
      - 22                                     (aa) by striking “mathe-  
23                                     matics and science” and inserting  
24                                     “STEM subjects”; and

1 (bb) by striking “mathematics,  
2 engineering, and science”  
3 and inserting “a STEM field”.

4 **PART C—AFTER SCHOOL PROGRAMS**

5 **SEC. 131. 21ST CENTURY LEARNING CENTERS.**

6 Section 4205(a)(2) of the Elementary and Secondary  
7 Education Act of 1965 (20 U.S.C. 7175(a)(2)) is amended  
8 by striking “mathematics and science” and inserting  
9 “STEM”.

10 **PART D—RURAL EDUCATION**

11 **SEC. 141. RURAL AND LOW-INCOME SCHOOL PROGRAM.**

12 Section 6222(a)(2) of the Elementary and Secondary  
13 Education Act of 1965 (20 U.S.C. 7351a(a)(2)) is amend-  
14 ed by inserting “and professional development in the area  
15 of engineering education” before the period at the end.

16 **PART E—GENERAL PROVISIONS**

17 **SEC. 151. DEFINITIONS.**

18 Section 9101 of the Elementary and Secondary Edu-

19 cation Act of 1965 (20 U.S.C. 7801) is amended—

20 (1) by redesignating paragraphs (42) and (43)  
21 as paragraphs (43) and (44), respectively; and

22 (2) by inserting after paragraph (41) the fol-  
23 lowing:

24 “(42) STEM.—The term ‘STEM’ means—

1               “(A) science, technology, engineering, and  
2               mathematics; and

3               “(B) other academic subjects that build on  
4               the subjects described in subparagraph (A),  
5               such as computer science.”.

6 **TITLE II—AMENDMENTS TO THE**  
7 **EDUCATION SCIENCES RE-**  
8 **FORM ACT OF 2002**

9 **SEC. 201. DEFINITIONS.**

10          Section 102 of the Education Sciences Reform Act  
11 of 2002 (20 U.S.C. 9501) is amended—

12               (1) by redesignating paragraph (23) as para-  
13               graph (24); and

14               (2) by inserting after paragraph (22) the fol-  
15               lowing:

16               “(23) STEM.—The term ‘STEM’ means—

17               “(A) science, technology, engineering, and  
18               mathematics; and

19               “(B) other academic subjects that build on  
20               the subjects described in subparagraph (A),  
21               such as computer science.”.

22 **SEC. 202. RESEARCH ON ENGINEERING EDUCATION.**

23          Part A of title I of the Education Sciences Reform  
24 Act of 2002 (20 U.S.C. 9511 et seq.) is amended by add-  
25 ing at the end the following:

1     **1 “SEC. 121. RESEARCH ON ENGINEERING EDUCATION.**

2         “(a) IN GENERAL.—The Secretary, acting through  
3     the Director, shall support, directly or through grants or  
4     contracts, research on engineering education, including  
5     studies and evaluations that—

6             “(1) identify and assess how science inquiry  
7     and mathematical reasoning can be connected to en-  
8     gineering design in kindergarten through grade 12  
9     curricula and teacher professional development;

10          “(2) identify best practices and promising innova-  
11     tions in the field of kindergarten through grade 12  
12     engineering education; and

13          “(3) include any other information or assess-  
14     ments the Secretary may require.

15          “(b) DISSEMINATION.—The Secretary shall, based on  
16     the results of the research described in subsection (a), dis-  
17     seminate information and analysis to the public, and pro-  
18     vide technical assistance to State educational agencies, on  
19     best practices and promising innovations in the field of  
20     kindergarten through grade 12 engineering education.”.

21     **21 SEC. 203. NATIONAL CENTER FOR EDUCATION RESEARCH.**

22         Part B of title I of the Education Sciences Reform  
23     Act of 2002 (20 U.S.C. 9531 et seq.) is amended—

24             (1) in section 131(b)(1)(C), by striking “mathe-  
25     matics, science” and inserting “STEM”; and

1                   (2) in section 133(a)(11), by striking “math-  
2                   ematics and science” and inserting “STEM”.

